

Name: _____

Date: _____

A2 CC Review Sheet for Quarter Exam Quarter 1

Please answer all questions and show all work on a separate sheet of lined paper. This sheet must be completed by Tuesday, 11/7. The Quarter Exam is Wednesday, 11/8. This review sheet is **not** comprehensive. In order to fully prepare for this exam you need to go over your notes, homework assignment, OLD EXAMS.

In 1 - 3, perform the indicated operations and express answers in simplest form.

1. $\frac{x^2 - 3x}{2x^2 + x - 6} \div \frac{x^2 - 5x + 6}{x^2 - 4}$

2. $\frac{x^2 - 9}{x^2 - 5x} \cdot \frac{5x - x^2}{x^2 - x - 12} \div \frac{x - 4}{x^2 - 8x + 16}$

3. $\frac{3y^2 + 11y + 10}{5y^2 + 11y + 2} \div \frac{3y^2 - y - 10}{1 - 25y^2}$

In 4 - 10, factor each completely.

4. $3x^2 - 12$

8. $5a^2 + 14a - 3$

5. $81y^4 - 16$

9. $a^3 - 2a^2 + a - 2$

6. $x^3 - x^2 - 6x$

10. $x^2 + ax + bx + ab$

7. $4x^2 - 6x - 4$

11. Find the sum of $x\sqrt{3}$ and $\sqrt{75x^2}$

12. Simplify: $5\sqrt{-27} - \sqrt{-108} - 3\sqrt{-75}$

13. Simplify: $\frac{5x^2 - 15x}{27x - 3x^3}$

14. Write the value(s) of the variable, if any, for which the fraction is not defined:

(a) $\frac{5}{3-x}$

(b) $\frac{10}{x^2 - 25}$

(c) $\frac{x^2 - 49}{2x^2 - 3x}$

(d) $\frac{x^2 - x - 2}{x^3 + x^2 - 2x}$

15. Solve: $x - \sqrt{9 - 2x} = 3$

16. $\sqrt{2x+1} - 1 = 4$

17. Express in simplest form: $-3i^{50} + 5i^{51}$

18. Express the product in $a + bi$ form: $(4y - 5i)(2y + i)$

19. Solve for x : $2^{x+1} = 16$

20. Solve for x : $\left(\frac{1}{3}\right)^{x+1} = 27$

21. Solve for x : $2x^{\frac{2}{3}} + 4 = 22$

22. Solve for x : $2\sqrt{2x+3} + x = 1$

23. Solve for x : $\sqrt{x-1} + x = 7$

For 24-26, simplify the expression and eliminate any negative exponents.

24. $(6x^6y^2)^2 \left(\frac{x^5y^2}{2} \right)$

25. $(r^2s)^3(3s)^{-2}(9r)^2$

26. $\frac{a^4b^{-2}c}{a^{-5}b^5}$

For 27-29, rewrite each expression in radical form. (Assume all variables are positive.)

27. $4a^{\frac{2}{3}}$

28. $x^{\frac{-3}{4}}$

29. $(5y)^{\frac{3}{8}}$

30. Simplify: $\sqrt[3]{32x^7y^9z^2}$

31. Simplify: $\frac{6\sqrt{8x^3} - 9\sqrt{10x^5}}{3\sqrt{2x}}$

32. If a restaurant is chosen at random in Rhinebeck then there is an 84% chance that it is open on Sunday and a 42% chance that it is open on Monday. If there is a 96% chance it is open on either Sunday or Monday, what is the probability that it is open both days?

(1) 30%

(2) 44%

(3) 38%

(4) 50%

33. The probability on any given work day that Kirk gets less than five hours of sleep the night before and doesn't shave is 0.65. If there is a 0.20 probability on any given day that he shaves and a 0.70 probability he gets less than five hours of sleep, then what is the probability he doesn't shave given that he got less than five hours of sleep?

(1) 0.73

(2) 0.81

(3) 0.78

(4) 0.93

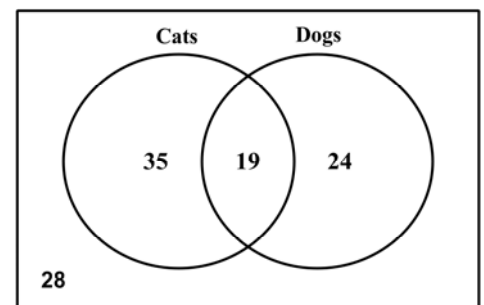
34. A survey of 106 households was done to investigate the type of pets in the house. The results are shown in the Venn diagram below. If a household was selected at random, which of the following would be the probability the house would have cats given they have dogs?

(1) 0.33

(2) 0.44

(3) 0.56

(4) 0.63



35. Simplify: $\frac{3}{x+7} + \frac{4}{x-8}$

36. Simplify: $\frac{5}{4x^2y} + \frac{3}{14xy^3}$

37. Simplify: $\frac{x-1}{x-2} - \frac{x^2+4x-4}{x^2+4x-12}$

38. Factor completely $8x^3 - 27$

39. Factor completely $3x^3 + 24$